

FIG. 1

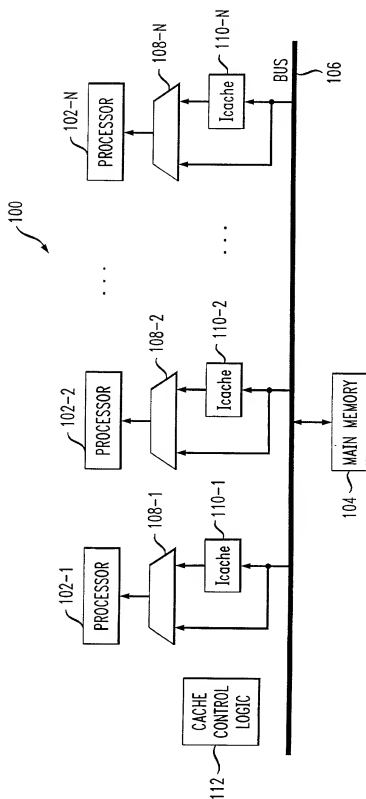


FIG. 2

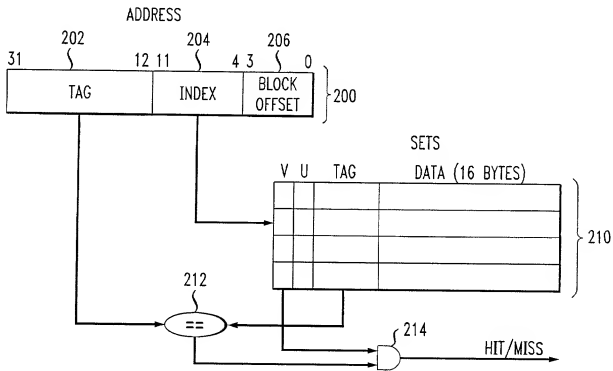


FIG. 3

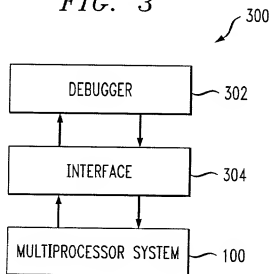
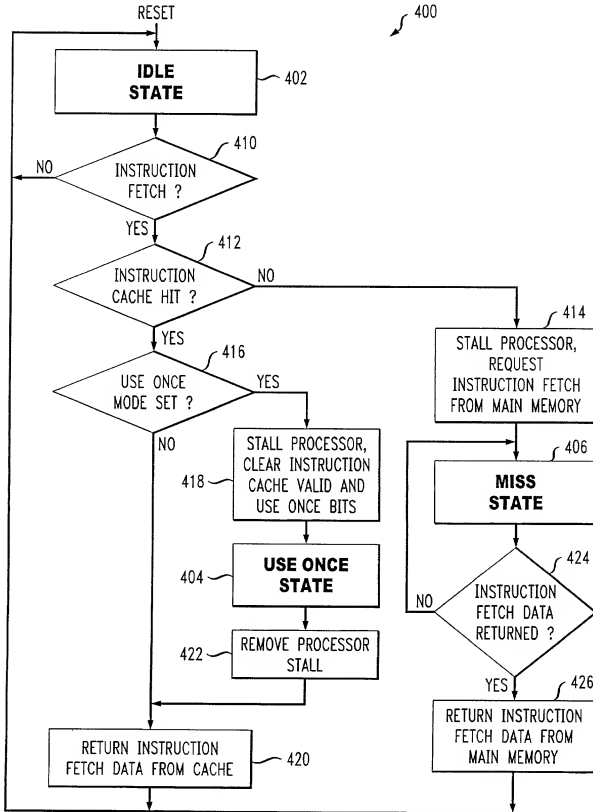


FIG. 4



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FIG. 5

(a)

```

P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 0
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: x
P0 cache[index(swbpt)] Data state: x
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 0
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: x
P2 cache[index(swbpt)] Data state: x

```

(b)

```

P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 1
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: tag(swbpt)
P0 cache[index(swbpt)] Data state: DEBUG
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 0
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: x
P2 cache[index(swbpt)] Data state: x

```

(c)

```

P0 state: DEBUG
P0 cache[index(swbpt)] V state: 1
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: tag(swbpt)
P0 cache[index(swbpt)] Data state: DEBUG
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 0
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: x
P2 cache[index(swbpt)] Data state: x

```

(d)

```

P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 1
P0 cache[index(swbpt)] U state: 1
P0 cache[index(swbpt)] Tag state: tag(swbpt)
P0 cache[index(swbpt)] Data state: bpopcode
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 1
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: tag(swbpt)
P2 cache[index(swbpt)] Data state: DEBUG

```

FIG. 5 (cont'd)

(e)

```
P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 0
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: x
P0 cache[index(swbpt)] Data state: x
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: DEBUG
P2 cache[index(swbpt)] V state: 1
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: tag(swbpt)
P2 cache[index(swbpt)] Data state: DEBUG
```

(f)

```
P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 0
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: x
P0 cache[index(swbpt)] Data state: x
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 1
P2 cache[index(swbpt)] U state: 1
P2 cache[index(swbpt)] Tag state: tag(swbpt)
P2 cache[index(swbpt)] Data state: bopcode
```

(g)

```
P0 state: NONDEBUG
P0 cache[index(swbpt)] V state: 0
P0 cache[index(swbpt)] U state: 0
P0 cache[index(swbpt)] Tag state: x
P0 cache[index(swbpt)] Data state: x
P1 state: NONDEBUG
P1 cache[index(swbpt)] V state: 0
P1 cache[index(swbpt)] U state: 0
P1 cache[index(swbpt)] Tag state: x
P1 cache[index(swbpt)] Data state: x
P2 state: NONDEBUG
P2 cache[index(swbpt)] V state: 0
P2 cache[index(swbpt)] U state: 0
P2 cache[index(swbpt)] Tag state: x
P2 cache[index(swbpt)] Data state: x
```